


1.1 Finding and Describing Patterns

Examples:



2, 4, 8, 16, ... *32*

1, 4, 9, 16, ... *25*

1, 5, 9, 13, 17, ... *21*

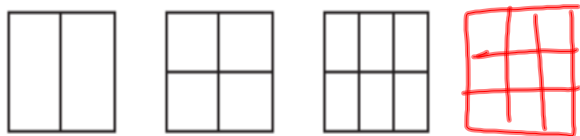
A, B, B, C, C, C, ... *D, D, D, D*

3, 12, 48, *x4* *192*

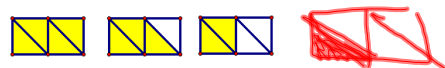
J, F, M, A, ... *M*

Sep 7-9:20 AM

What shape is next?




What shape is next?




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Describe a pattern.

1. 


3. 4, 8, 12, 16, 20, 24, ...

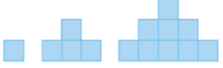
2. 

4. 35, 30, 25, 20, 15, 10, ...

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Sketch the next two figures you expect in the pattern.

5. 

6. 

Write the next two numbers you expect in the pattern.

7. -2, -5, -8, -11, ... *-14, -17*

8. 4, 10, 16, 22, ... *28, 34*

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Sketch the next figure you expect in the pattern.

1.



3.



4.



Describe a pattern in the numbers. Write the next two numbers you expect in the pattern.

5. 3, 11, 19, 27, ...

+8

6. 2, 6, 18, 54, ...

$\times 3$

$\times 3$

1.2 Inductive Reasoning

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Aug 22-9:46 AM

Conjecture--unproven statement based on pattern or observation

Counterexample-- an example that shows a conjecture is false

Complete the conjecture with the word *odd* or *even*.

1. The sum of any three odd numbers is odd.

Examples: $1 + 5 + 7 = 13$
 $3 + 5 + 9 = 17$
 $-5 + 7 + 11 = 13$

2. The difference between an integer and its opposite is even.

Examples: $5 - -5 = 10$
 $-8 - 8 = -16$
 $10 - -10 = 20$
 $-3 - 3 = -6$

Sep 7-8:26 AM

Aug 22-9:50 AM

Complete with odd or even.

Complete the conjecture based on the pattern in the examples.

1. *Conjecture:* The product of any two odd numbers is ?

EXAMPLES

$1 \times 1 = 1$	$3 \times 5 = 15$	$3 \times 11 = 33$
$7 \times 9 = 63$	$11 \times 11 = 121$	$1 \times 15 = 15$

Show the conjecture is false by providing a counterexample.

Conjecture: If the sum of two numbers is positive, then the two numbers must be positive.

$$2 + 4 = 6$$

$$-3 + 7 = 4$$

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Sep 11-10:32 AM

Show the conjecture is false by finding a counterexample.

3. If the product of two numbers is even, the numbers must be even.
4. If a shape has two sides the same length, it must be a rectangle.

Complete the conjecture with *odd* or *even*.

3. *Conjecture:* The difference of any two odd numbers is ?.

4. *Conjecture:* The sum of an odd number and an even number is ?.

Sep 11-10:34 AM

Aug 22-9:50 AM

Show the conjecture is false by finding a counterexample.

5. Any number divisible by 2 is divisible by 4.

6. The difference of two numbers is less than the greater number.

Worksheet

Sep 11-10:38 AM

Aug 22-9:51 AM